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(71) Applicant *(for all designated States except US)*: **THE DIRECTV GROUP, INC.** [US/US]; 2250 E. Imperial Highway, El Segundo, CA 90245 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ANDERSON, Paul, R.** [US/US]; 1224 11th Place, Hermosa Beach, CA 90254 (US). **SANTORU, Joseph** [US/US]; 5425 Meadow Vista Way, Agoura Hills, CA 91301 (US). **CHEN, Ernest, C.** [US/US]; 1025 Via Cordova, San Pedro, CA 90732 (US).

(74) Agent: **CROOK, John, A.**; Hughes Electronics Corporation, Patent Docket Department, RE/R11/A109, P.O. Box 956, El Segundo, CA 90245-0956 (US).

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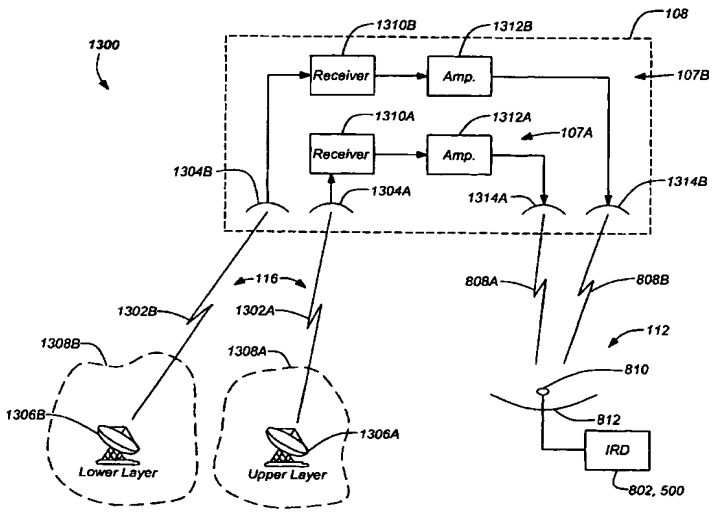
(54) Title: FEEDER LINK CONFIGURATIONS TO SUPPORT LAYERED MODULATION



(57) Abstract: Systems and methods are disclosed for feeder link configurations to layered modulation. One feeder link system (13A) employs feeder link spot beam to antennas in distinct coverage areas to enable frequency reuse. In this system 1300, the uplink signals (116) comprise two distinct feeder link signals (1302A, 1302B). Feeder link spot beam antennas (1304A, 1304B) can be employed on the satellite (108) to reuse feeder link spectrum in order to not exceed bandwidth of the layered modulation on the downlink. The feeder link system (1300) includes a first feeder link antenna (1306A) and a second feeder link antenna (1306B) transmitting the first link signal at first frequency and the second link signal at second frequency respectively. Although the two feeder link frequencies are in substantially the same frequency band, the use of spot beam antennas (1304, 1304B) with distinct coverage areas (1308A, 1308B) prevents the first and second feeder link signals (1304A, 1304B) from interfering.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/33255

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 7/185, 7/204, 7/208
US CL : 370/316, 319, 344

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 370/316, 319, 344

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/0041575 A1 (KARABINIS et al) 11 April 2002 (11.04.2002), figures 1, 2A, 8A and paragraphs 0007-0010, 0033, 0038-0043, 0052, 0053, 0063-0067, 0110-0117, 0140, 0141 and claims 1-10.	1-60
Y	US 5,848,060 (DENT) 08 December 1998 (08.12.1998), figures 5, 7, 8A, 8b, and column 8, line 15 to column 10, line 2 and claims 1-14.	1-60
Y,P	US 2002/0181604 A1 (CHEN) 05 December 2002 (05.12.2002), figures 1A-1C, 4A, 4B and paragraphs 0014, 0025, 0028, 0030-0032, and 0044.	1, 10, 19, 25, 31, 40, 49, 55
A	US 5,555,257 (DENT) 10 September 1996 (10.09.1996), whole document.	1-60
A	US 5,642,358 (DENT) 24 June 1997 (24.06.1997), abstract, figure 6, and claim 1.	1-60

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703) 305-3230

Authorized officer
Chirag Shah
Telephone No. 703-305-5639

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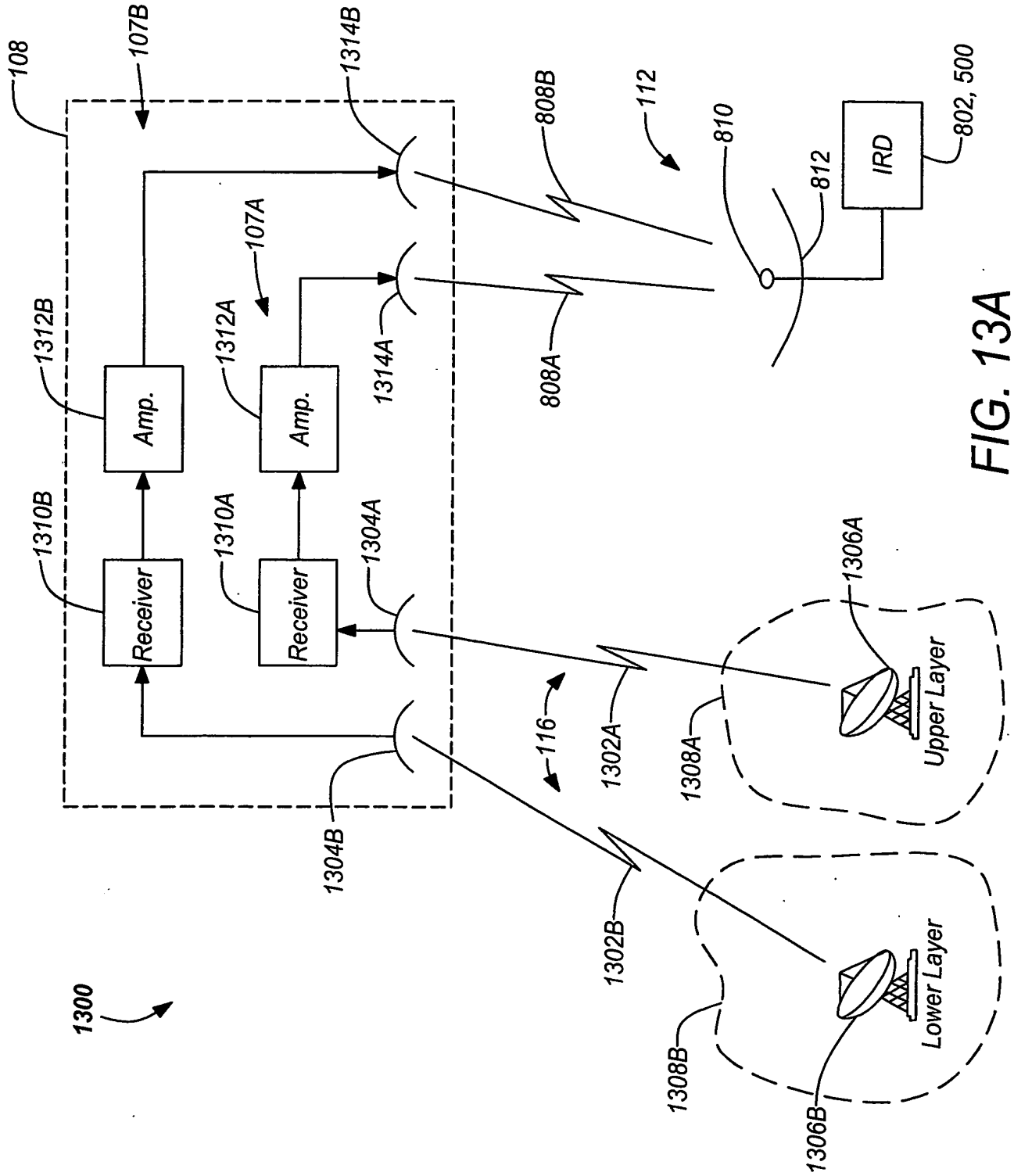
1300
108
107B
1314B
808B
112
810
812
IRD
802, 500
107A
1312B
1312A
1314A
808A
Amp.
Amp.
1310B
1310A
1304A
Receiver
Receiver
1306A
Upper Layer
116
1302A
1308A
1304B
1302B
1308B
Lower Layer
1306B

FIG. 13A